

What is claimed is:

1. A method of cutting roofing shingles comprising:  
moving multiple webs of roofing material to a cutter, and positioning the webs in stacked relationship prior to the cutter, the webs having distinct portions;  
5 sensing the locations of the distinct portions of the moving webs;  
simultaneously cutting end cuts through the multiple stacked webs with the cutter to produce separate roofing shingles from the webs; and  
controlling the location of the cutting, based on the sensed locations of the distinct portions, so that the end cuts of the roofing shingles are positioned at  
10 predetermined locations relative to the distinct portions.
2. The method defined in Claim 1 wherein the location of the cutting is controlled by controlling at least one of the timing of the cutting and the movements of the webs.  
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3. The method defined in Claim 2 wherein the location of the cutting is controlled by controlling the movements of the webs.
4. The method defined in Claim 3 wherein the distinct portions of the  
20 webs form repeated patterns, wherein the cutter is a rotating cutting cylinder, and wherein the movements of the webs are controlled so that the patterns are maintained in phase with the rotation of the cutting cylinder during the cutting.
5. The method defined in Claim 1 wherein the distinct portions of the  
25 webs form repeated patterns, and wherein the location of the cutting is controlled so that the lengths of the roofing shingles are predetermined multiples of the lengths of the patterns.

6. The method defined in Claim 1 wherein the webs are moved independently from each other along at least a portion of their paths to the cutter.

7. The method defined in Claim 1 wherein the sensing step comprises  
5 sensing the locations of tabs, and wherein the controlling step comprises controlling the location of the cutting so that the end cuts are positioned at predetermined locations relative to the tabs.

8. The method defined in Claim 7 wherein the location of the cutting is  
10 controlled so that the tabs are greater than about 1.4 inches (3.6 centimeters) in length.

9. The method defined in Claim 1 wherein the sensing step comprises  
15 sensing the locations of slots, and wherein the controlling step comprises controlling the location of the cutting so that the end cuts are positioned at predetermined locations relative to the slots.

10. The method defined in Claim 1 wherein the sensing step comprises  
20 sensing the locations of color or shading changes of granules on the webs, and wherein the controlling step comprises controlling the location of the cutting so that the end cuts are positioned at predetermined locations relative to the color or shading changes.

11. The method defined in Claim 1 wherein the moving step comprises  
25 moving first and second webs of roofing material to the cutter, and wherein the cutting step comprises simultaneously cutting end cuts through the first and second webs.

12. The method defined in Claim 1 wherein the moving step comprises moving more than two webs of roofing material to the cutter, and wherein the cutting step comprises simultaneously cutting end cuts through the more than two webs.

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13. A method of cutting roofing shingles comprising:

moving first and second webs of roofing material to a cutter, the webs comprising overlay and underlay strips laminated together, the movements of the webs being independent from each other along at least a portion of their paths to the cutter, and positioning the webs in stacked relationship prior to the cutter, the webs having distinct portions that form repeated patterns;

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sensing the locations of the distinct portions of the moving webs;

simultaneously cutting end cuts through the first and second stacked webs with the cutter to produce separate roofing shingles from the webs; and

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controlling the location of the cutting by controlling the movements of the webs, based on the sensed locations of the distinct portions, so that the end cuts of the roofing shingles are positioned at predetermined locations relative to the distinct portions, and so that the lengths of the roofing shingles are predetermined multiples of the lengths of the patterns.

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14. The method defined in Claim 13 wherein the first and second webs are moved at a speed of at least about 400 feet/minute (122 meters/minute).

15. The method defined in Claim 13 wherein the distinct portions are tabs that are adjacent to cutouts, and wherein the thickness of the tabs is not more than about 0.15 inch (0.38 centimeter) greater than the thickness of the cutouts.

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16. The method defined in Claim 13 wherein the cutter is a rotating cutting cylinder, and wherein the movements of the webs are controlled so that the patterns are maintained in phase with the rotation of the cutting cylinder during the cutting.

5 17. Apparatus for cutting roofing shingles comprising:  
a multiple-cut shingle cutter adapted to simultaneously cut end cuts through multiple stacked webs of roofing material to produce separate roofing shingles from the webs, the webs having distinct portions;  
10 feeders adapted to move the webs to the cutter;  
web handling apparatus adapted to position the webs in stacked relationship prior to the cutter;  
location sensors adapted to sense the locations of the distinct portions of the moving webs; and  
15 a controller adapted to control the location of the cutting, based on the sensed locations of the distinct portions, so that the end cuts of the roofing shingles are positioned at predetermined locations relative to the distinct portions.

20 18. The apparatus defined in Claim 17 wherein the feeders are adapted to move the webs independently from each other, and wherein the controller is adapted to control the location of the cutting by controlling the movements of the webs.

25 19. The apparatus defined in Claim 17 wherein the cutter is a rotating cutting cylinder, wherein the distinct portions of the webs form repeated patterns, and wherein the controller is adapted to control the movements of the webs so that the patterns are maintained in phase with the rotation of the cutting cylinder during the cutting.

20. The apparatus defined in Claim 17 further including distance measuring devices to measure the lengths of the distinct portions.